

# Crab Cavities Technical Coordination XXXIV



**Location:** 112/2-023  
**Date:** 30th August 2017, week 35  
**Time:** 9h00  
**Scope:** coordination and alignment of tasks involved in the preparation of SPS tests, follow up of master plan.  
**Attendees:** F.Bertinelli, A.Berjillos Barranco, I.Ben-Zvi, K.Schirm, F.Gerigk, O.Capatina, F.Galleazzi, G.Vandoni, A.Macpherson, A.Castilla-Loeza, M.Sosin, R.Calaga

**Master schedule:** EDMS 1747466

**Logbook:** <http://elogbook.cern.ch/eLogbook/eLogbook.jsp?lgbk=387>

## Action list:

### Space:

ID	Action	Who	Opened	Closed	Result, Comment
57	Follow-up of space in bldg. 2002	Frank	8.5.2017		B.2002 will be cleared (G.Mcmonagle) before Dec17, for SRF use

### General and Planning:

ID	Action	Who	Opened	Closed	Result, Comment
49	Define detailed test sequence of Cryomodule in SM18	Rama	27.2.2017		Presented at the CC Review, Rama elaborates the details with all actors. To be presented at TCC, end Sept
56	Bottom-up planning of SPS activities for YETS	Giovanna	8.5.2017		In work, deadline: 13.9.2017 for the SPS Coordination
57	Draft initial operational scenario for SPS tests	Rama	22.5.2017	1.09.2017	GV presents an outline at IEF, 1 <sup>st</sup> Sept Then to be presented at TCC with ABP, end Sept
59	Identify a link person for insulation vacuum in SM18 tests	Frank	30.8.2017		V.Baglin, contacted, has promised feedback
60	Analyze, optimize and squeeze tasks for CRG and Survey	Mateusz, Krzysztof	30.8.2017		EN/MME proposes manpower if needed
61	Report on readiness of controls software and hardware	Rama	30.8.2017		With Eric, Philippe, Andy, Luca, in 1 month

### Documentation:

ID	Action	Who	Opened	Closed	Result, Comment
44	MTF to be updated with actions on RF conditioning. RF test reports to be placed in correct node.	Carlo	30.1.2017		Input needed by Alick. Karl will follow this up too. Reminder sent by Carlo.

## M7 readiness & test sequence of cryomodule in SM18 (SRF section)

A complete test-sequence was worked out 1 year ago, including RF conditioning, low- and high-power tests and LLRF gymnastics. This sequence is estimated to last 10 weeks, with unknowns depending on the rate of cavity processing. Today, we consider that before installation in SPS we need a cooldown test, vacuum check, alignment verification, tuner test, 1kW RF power injection. The list of cables is done with this sequence in mind.

Readiness of the M7 bunker will be presented to the TCC in some weeks by Alick. The new connection valve box is scheduled to arrive on the 15<sup>th</sup> Oct, followed by 1 week connection work, stopping helium delivery for RF tests. CRG has no further concern on the readiness of M7 for the cold tests.

Francesco asks about the priority between M7 preparation and LHC cryomodule testing in M9. Karl explains that if there is a conflict between Crab activities and LHC cryomodule testing we can temporarily prioritise the Crab activities.

Alick has contacted Vincent Baglin on a link-person for insulation vacuum: Vincent has promised to come back with a name.

## Planning (A.Berjillos)

The main change with respect to the previous version is an additional delay of 15 working days accumulated in the "Cavity string assembly" task. As of today, Cryogenic tests preparation is bound to start on the 9<sup>th</sup> Jan, while the CM is expected to be delivered to SPS on the 22<sup>nd</sup> Feb. To match the YETS installation slot, it needed to be ready for transport on the 19<sup>th</sup> Jan: the delay amounts to 22 working days. End of access in SPS is the 23<sup>rd</sup> Feb, followed by 3 weeks of cold checkout and hardware commissioning, for beam commissioning in the SPS on week 12. Task 293 and subtasks (Cryogenic tests & Preparation) include pressure tests and vacuum cycling. G.Vandoni explains that installation of the CM in SPS cannot be earlier than the 22<sup>nd</sup> Jan, as some equipment must be there before.

For EN/MME, F.Bertinelli gives the following strong message: we haven't been working 2 years to fail in the last month. He has mandated M.Garlasché to propose a plan to partially recover the delay, whether based on increased resources, increased working time or optimization of availability of components. Marco will propose a plan at the end of the week, but he estimates that the bottleneck is readiness of some components, which can be made available earlier with some additional resource effort.

A thorough analysis of the last tasks before SM18 tests is asked to Survey and Cryogenics to optimize the order, sequence and squeeze tasks from 101 to 355 to recuperate time and connect the cryomodule to M7 cryogenic distribution before Xmas. The option of over hours and weekend work shall be explored as well, as it is proposed by MME.

Mateusz explains that the presently asked 16 days for alignment gymnastics with vacuum cycling will be squeezed by a factor 2. If something appears as misaligned, it will be realigned. This gymnastics is a validation of the whole alignment and survey system, not influencing the capability to align within 0.5mm as per spec. Alignment activities may be better executed at night time. The Coordination encourages him to consider also postponing alignment validation tests after the SPS tests.

As of today, CRG has planned to connect and weld the CM and the cryo infrastructure with its own resources, but in case of need, EN/MME may propose skilled manpower for these activities.

BE-RF-SRF will study whether it needs extra resources or can profit from extension of working hours.

Karl warns against delays in SM18 arising from the preparation of the official EUCAS event planned for the 21<sup>st</sup> Sept.

The Coordination decides that no alternative scenario will be worked out yet, while the planning is being optimized to fit the installation slot. Optimization of the Master schedule will be presented in 2 weeks' time. Study of potential backup options will come later.

## Cryostating (M.Garlasché)

Cryostat assembly is now in step 3/15, no major concerns are raised.

## AOB

Alick presents the planning of development of software (FESA class) for the cryomodule operation and LLRF. This task is within A.Butterworth's section, for the SM18 as well as for SPS, with Niall Stapley working on it. For the SPS tests, it must be possible to control the cryomodule from the CCC, as any other component of the SPS machine. The initial set-up activity will be from a PC installed inside the Faraday cage – which is specified with sonic insulation in order to cope with health rules and regulations. In 1 month from now, Rama will bring together E.Montesinos, P.Baudrenghien, L.Arnaudon and A.Butterworth to sort out hardware, low level hardware, FESA classes etc.

*Minutes taken by Giovanna*

*Next meeting: Monday 11th September 2017*